# JEWISH PHYSICIANS AND THE CON[illegible] BUTIONS OF THE JEWS TO THE SCIENCE OF MEDICINE

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BY

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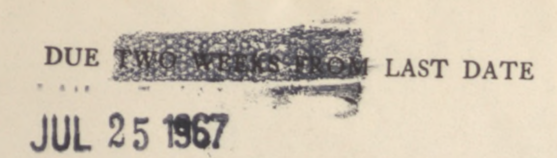
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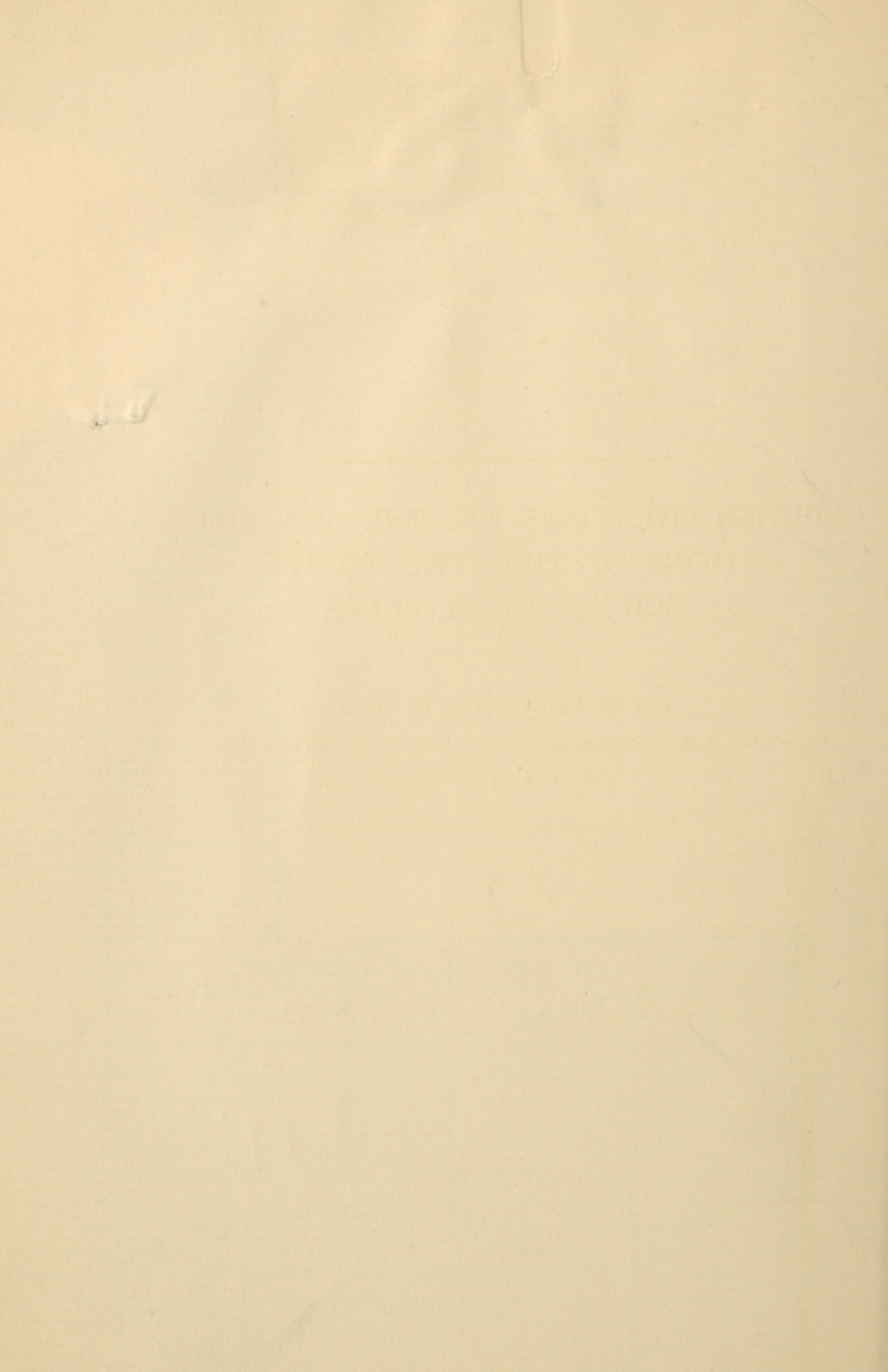


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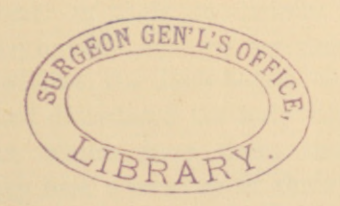


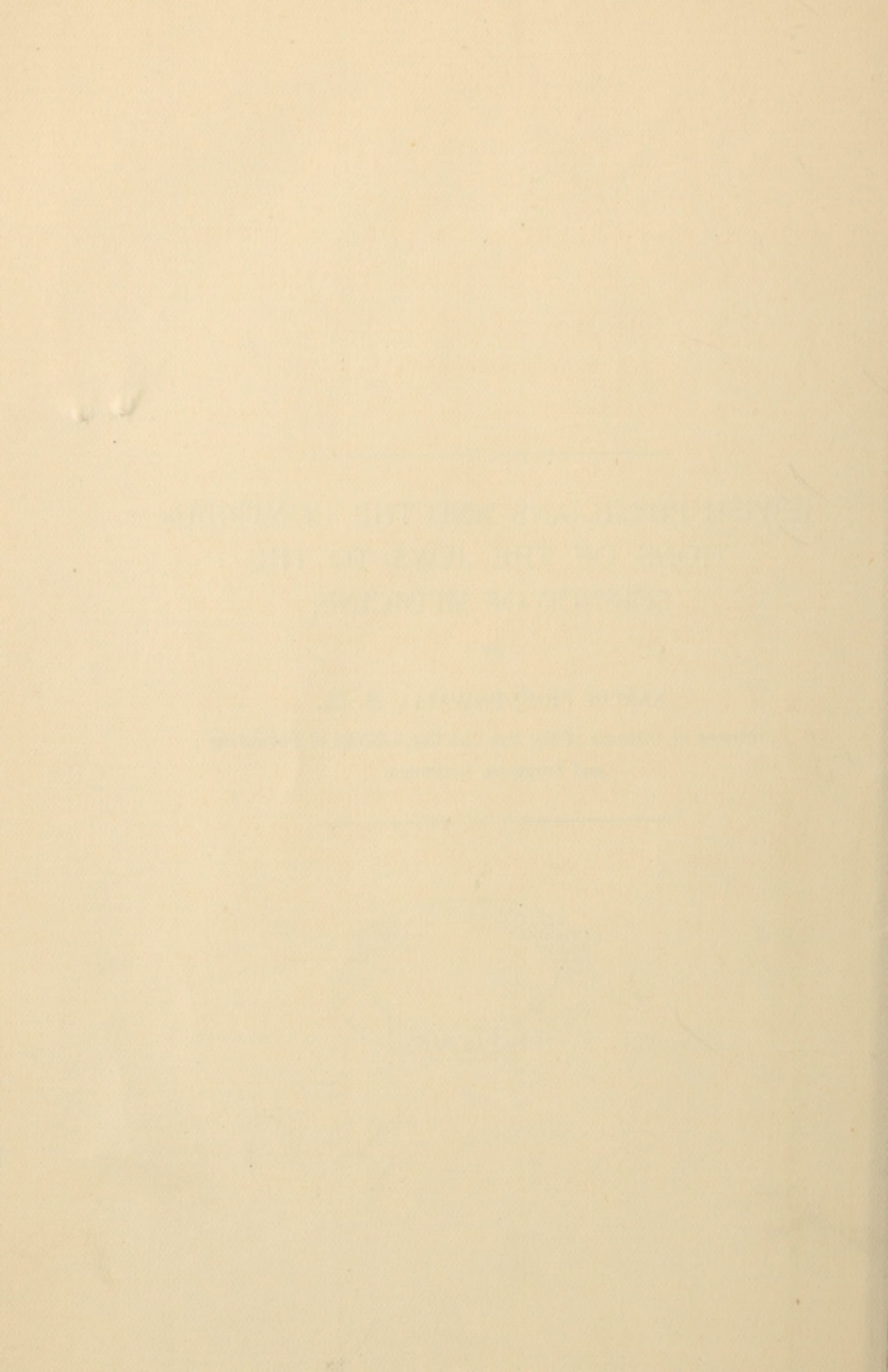
# JEWISH PHYSICIANS AND THE CONTRIBUTIONS OF THE JEWS TO THE SCIENCE OF MEDICINE,

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BY AARON FRIEDENWALD, M. D.

An examination into the development of medicine among the ancient Jews forms a most interesting study. Among all other nations upon the decline of their political power there followed a decadence in the arts and in the sciences which they had developed and with the complete overthrow of their national independence their literature temporarily ceased, or was wholly consigned to oblivion. Annihilation of their religion was coincident with the death of their national power and they themselves were either destroyed by their conquerors or disappeared among them.

Such was not the case with the Jews. They had a religion which embraced their civil law before they had a country, and their religion and literature continued to flourish after they succumbed to their conquerors, and long after the power of their conquerors had ceased. Indeed, so far as the natural sciences are concerned, and notably so with medicine, the Jews began their greatest work after Rome had devastated the holy city.

The institutions, which gave them their national character before they had a country of their own, maintained that character after the loss of their country and inspired them with a spiritual and an intellectual vigor which enabled them to become the leaders in the promotion of science wherever they were permitted to dwell.

Egypt had developed a high civilization long before the four centuries during which the Jews had sojourned there. It reached the zenith of its glory about the 17th century B. C., during a part of which period Moses was receiving his education under royal favor. Medicine especially had achieved a marvelous advancement at this time.

The papyri of Leipsic and Berlin (the papyri of Ebers) shed important light upon the great progress which medical science had made. The Leipsic papyri present the conjoined work of a number of contributors, written it is assumed between 1550 and 1547 B. C., but representing knowledge which was the growth of a much earlier period. Among the associate editors of this work there appears one Byblos, an oculist of Phonecia. This indicates that science had already assumed somewhat of an international character.

From this important piece of literature we glean that the practice of medicine was divided into specialties, to the extent that there were special physicians for the diseases of nearly all of the important organs of the body. When the services of one of these physicians were required, a messenger was sent to the temple (the practice of medicine being embraced in the function of the priests) and, according to a description of the ailment, a physician was despatched to the relief of the sufferer.

These ancient Egyptians were quite familiar with a large number of drugs, many of which, viz.: opium, strychnia, squill, etc., have maintained a high rank among the more prominent agents of the most modern materia medica. A large number of prescriptions that have been preserved manifest that the apothecary had well learned his trade. Operative surgery had made no

mean progress. Cupping by means of horns sawed off near their point, and general blood-letting had been introduced. Lithotomy (cutting for stone in the bladder) was performed with great dexterity. Amputations were practiced as is shown by pictures found at Thebes and Denderah. Ophthalmic surgery had made great strides, and it is regarded as quite probable that operations for cataract were in vogue. The dental art was not neglected, for artificial teeth have been discovered in mummies.

It is rather surprising, in view of the advanced culture of medical knowledge among the Egyptians, that there should be no evidence that the Jews took much of this knowledge with them when they left the country. The only reference occurring in the Pentateuch in this regard is what is written about the art of the apothecary* in the directions given as to the oil of holy ointment and the incense. The explanation for this may be that medicine up to that period, and for centuries afterwards, was a monopoly of the priesthood, and, furthermore, it may be fairly assumed that the enslaved condition of the Jews precluded the acquisition of such knowledge.

There is another reference, in which the Egyptian physicians are mentioned, relating to the embalming of the body of Jacob. While this cannot be properly brought in relation with Egyptian medicine, as known by the Jews, it has the interest of rejecting the conclusion of some of the writers on the development of anatomy in Egypt, who assert that embalming was a trade, and those engaged in it were not of a character to have benefitted the science of anatomy. In the 50th chapter of Genesis, v. 11, we read, "And Joseph commanded his

* Exodus, Chapter XXX., v. 25 and v. 35.

servants and physicians to embalm his father, and the physicians embalmed Israel."

The knowledge of the obstetric art among the Jews in Egypt was probably of a simple character and uninfluenced by Egyptian science. Shiphrah and Puah, two Hebrew midwives, mentioned in the 1st chapter of Exodus, who feared God and did not as the King of Egypt commanded them, to kill all male children during their birth, said in their defense, when arraigned before the King, "The Hebrew women are not as the Egyptian women, for they are lively and are delivered ere the midwives come in unto them." The strongest evidence, however, that the early development of medicine among the Jews was uninfluenced by their sojourn in Egypt is that not only are drugs not mentioned in the Bible, but even the Talmud speaks of but very few, when it is known that the remedies employed by the Egyptians were very numerous. This evidence becomes stronger when we consider that the giving of drugs, when at hand, in the treatment of diseases has at all times and among all nations had an especial charm, commonly too strong, the deleterious tendencies of which even the modern great advancement of the science has not been fully able to overcome.

In consulting the Bible as to what was known of medicine by the Jews in the early period, and soon reaching the conclusion that they were not indebted to Egypt in this respect, we are immediately confronted by the revelation that at this early period there were sanitary laws promulgated among them, which have remained a continuous lesson to the whole world ever since. A recent distinguished writer on the history of medicine says in regard to this: "It corresponds to the reality in both the

actual and chronological point of view to consider the Jews (Moses) as the creators of the science of public hygiene.[1] In the injunctions given in Leviticus, regarding leprosy, we find the three cardinal principles mentioned which regulate the management of contagious diseases by the science of to-day, viz.: careful differentiation, isolation and disinfection.

The teachings of Moses in regard to disease rests upon a basis which is the underlying principle in the preservation of health. He enjoins his people to obey God's laws so that they may be shielded from the plagues of Egypt.[2] Diseases are held up before them as a punishment of sin. Science teaches that violations of nature's laws will be followed by diseases, and the experience of every-day life is full of illustrations of the frequent relation of sin and suffering as cause and effect. Nature's laws are God's laws, and the edict against their violation cannot be changed. Whenever the individual has succeeded in disciplining himself to live in accordance with these laws he becomes an example of moral purity. Wheresoever the community fulfills its duty collectively in this respect, there we shall find the wisest legislation for the suppression of vice and the most complete system of public hygiene.

The treatment of diseases, according to the Pentateuch, was exclusively in the hands of the priests. The practice of medicine remained with the priesthood after the occupation of Palestine by the Israelites. There are a number of cases mentioned, among which are the leprosy of Miriam,* the diseases of the Philistines for having

1. Baas' Outlines of the History of Medicine. Henderson's English Translation, p. 34.

2. Exodus 15, v. 36.

*Numbers, XII., 10.

seized the ark of the covenant,† the melancholy of Saul,‡ the plague during the reign of David. The treatment applied in these cases, consisting of prayer and expiation by sacrifices, cannot be classed with the art of medicine among the Jews. The same holds good as to what is related in this regard when later the prophets became the physicians. We read of Jeroboam's hand having become withered;[1] the restoration to life of Zerreppath's child by Elias;[2] Elisha's cure of the son of the Shunamite,[3] and his treatment of Nathan, the Assyrian General, of leprosy;[4] and the gout of King Asa.[5]

Instances in which natural means were resorted to are not altogether wanting. Isaiah cured King Hezekiah of a glandular affection by the application of a cataplasm of figs;[6] Ezekiel describes clearly the treatment of fractures when he says, "Son of Man, I have broken the arm of Pharoah, King of Egypt; and lo! it shall not be bound up, to be healed, to put a roller to bind it, to make it strong to hold the sword."[7] In this connection it may be mentioned that tradition attributes to King Solomon a work on the treatment of diseases by natural means, which it is alleged was destroyed by Ezekias, because it was detrimental to the Levites, who healed diseases by expiatory sacrifices.[8]

ESSENES.

The time following the prophets, Malachi being the

† Samuel, LV., 6.
‡ Samuel, LXVI., 23.
1. 1 Kings, XIII.
2. 1 Kings, XIV.
3. 1 Kings, XVII.
4. 2 Kings, V.
5. 2 Chronicles, XVI.
6. 2 Kings, 20.
7. Ezekiel, XXX.
8. Talmud, Pesachim, ch. 10, p. 56.

last who lived about 400 B. C., was not propitious for the development of medicine. It was a time of political upheavals, religious persecutions and war, which at one time subjected the Jews to Syrian, at another to Egyptian domination.

At this period the scholars, learned in the law, took the place of the prophets in leading the people, but as these adhered very strictly to what was traditional, and only communicated their knowledge orally, there could not be much advancement in science. At the same time the priesthood degenerated and there arose in consequence a number of sects, among which the Essenes assumed a somewhat prominent role. This sect has the interest for us that besides adopting a life of self-abnegation, the marked features of which were celibacy and the discarding of private possession, through which they strove to reach the highest state of moral purity, they were credited with great success in the healing of the sick. Their methods consisted largely of mystic practices, such as softly spoken incantations and the use of certain roots and stones to which they attributed magic power. They are said to have made use of the medical work written by King Solomon. (Sefer Refuot) already referred to.*

## Talmudic Medicine.

When finally the Jewish state had to yield to the power of Rome, and the Temple lay in ashes, and everything material betokened national ruin, there arose a new hope, for while all else was lost the Jewish scholars had not surrendered their intellectual activity. Schools were organized for the preservation of the law, in many places widely separated from each other. These schools

* Graetz, History of the Jews (American Edition), Vol. II., p. 29.

were planted at Jabneh, Nahardia, Mathae-Mechasja, Sura, Alexandria and Tiberias. In these schools, dedicated mainly to the study of the law, all the sciences of that day were taught, among which the healing art was earnestly cultivated and the foundation laid of what we designate Talmudic medicine.

The following embraces a brief summary of some of the more important knowledge which comes under this heading. Fever was regarded as nature's efforts to expel mortific matter and restore health; which is a much safer interpretation of fever, from a practical point of view, than most of the theories bearing on this point that have been taught up to a very recent period. They attributed the halting in the hind legs of a lamb to a callosity formed around the spinal cord. This was a great advance in the knowledge of the physiology of the nervous system. An emetic was recommended as the best remedy for nausea. In many cases no better remedy is known to-day. They taught that a sudden change in diet was injurious, even if the quality brought by the change were better. That milk fresh from the udder was the best. The Talmud describes jaundice and correctly ascribes it to the retention of bile, and speaks of dropsy as due to the retention of urine. It teaches that atrophy or rupture of the kidneys is fatal. Induration of the lungs (tuberculosis ?) was regarded as incurable. Suppuration of the spinal cord had an equally grave meaning. Rabies was known. The following is a description given of the dog's condition: "His mouth is open, the saliva issues from his mouth; his ears drop; his tail hangs between his legs; he runs sideways, and the dogs bark at him; others say that he barks himself, and that his voice is very weak." No man has appeared

who could say that he has seen a man live who was bitten by a mad dog.* The description is good, and this prognosis as to Hydrophobia in man has remained unaltered till in our day when Pasteur published his startling revelation. The anatomical knowledge of the Talmudists was derived chiefly from dissection of animals. As a very remarkable piece of practical anatomy, for its very early date, is the procuring of the skeleton from the body of a prostitute by the process of boiling, by Rabbi Ishmael, a physician, at the close of the 1st century. He gives the number of bones as 252 instead of 232. The Talmudists knew the origin of the spinal cord at the *foramen magnum* and its form of termination; they described the oesophagus as being composed of two coats; they speak of the pleura as the double covering of the lungs; and mention a special coat for the fat about the kidneys. They had made progress in obstetrics; described monstrosities, congenital deformities; practiced version, evisceration and Caesarian section upon the dead and upon the living mother.† The surgery of the Talmud includes a knowledge of dislocation of the thigh bone, contusions of the skull, perforation of the lungs, oesophagus, stomach, small intestines and gall bladder; wounds of the spinal cord, wind-pipe, of fractures of the ribs, etc. (They described imperforate anus and how it was to be relieved by operation).‡ Chanina Ben Chania inserted natural and wooden teeth as early as the 2nd century, C. E.

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* Talmud, Treatise Berochath, Chapter 4.

† A. H. Israels has clearly shown in his "Dissertatia Historico-Medica Inauguralis" that Caesarian Section, according to the Talmud, was performed among the Jews with safety to mother and child.

‡ The above account of the progress of Talmudic Medicine has been mainly taken from Baas' History of Medicine.

## CHANINA BEN CHANIA; RAB, SAMUEL.

The first three prominent names which we meet in studying the character of the ancient Jewish physicians at this period are Chanina, Samuel and Rab.

Chanina was the pioneer. He became the physician Rabbi Jehuda Hanasi, son of Simeon, who died in the year 205. Chanina has the credit of inserting natural and artificial teeth as early as the 2nd century.

Rab distinguished himself in his earnest study of anatomy. He expended large sums of money in procuring subjects for dissection. Galen, the great ancient authority in medicine, who lived about the same time, relied altogether in his study of anatomy on the dissection of apes. Rab's name, therefore, deserves to be preserved among those who led the way in scientific research.

Samuel, born 180, the close friend of Rab, acquired greater fame as a practitioner of medicine. After having practiced in Palestine, he settled in Nehardea, a city in lower Mesopotamia. He was known as a skillful accoucheur, and had no less a reputation as an oculist. He relieved Jehudi Hanasi, the compiler of the Mishnah, of an affection of the eye, employing a remedy which bears his name, the collyrunn of Samuel.* He was highly honored for his great knowledge of astronomy. His great learning in the law placed him at the head of the school in Nahardea, and it is not out of place here to mention of him that he established the principle "Dina d' Malchutha Dina," that the civil law of the Government is as valid for the Jews as their own law. (He died in 254.)†

*Talmud, Treatise Sabbath, page 105.

†Mielziner, Introduction in the Talmud, p. 44.

There were many Jewish physicians during the 4th century, among whom Abba Oumna stands prominently, for, besides the great experience and skill which he acquired in his profession, his reputation for practicing the most refined benevolence became wide spread. Of the many tributes which are recorded, as testifying to the nobility of his character, there is one which specially deserves to be related. Abbaye, one of the wisest and most distinguished men of the age, sent two of his pupils to him who were sick. He received them kindly and ministered to their wants and gave them shelter for the night besides. On leaving on the following day they took with them the carpet which had covered the floor, and afterwards placed themselves where they were certain they would be met by their physician, in the attitude of having the carpet for sale. "What is this carpet worth," they asked. He named a sum. "Not more," they said. "No," he replied, "for it is the same exactly which I paid for one just like it." "Noble man!" they exclaimed, "it is your carpet. Did you not think ill of us when you missed it?" "Certainly not," was the Doctor's answer, "do you indeed believe that a child of Israel could think ill of anyone, and form an unfavorable judgment of his neighbor for one fault that he might have committed? I felt sure that no evil use would be made of the carpet, so let things remain as they are, sell the carpet and give the money to the poor."*

## The Contributions of the Jews to Arabic Medicine.

After the completion of the Talmud in the 5th century there were two centuries in which all sciences, medicine among the rest, suffered a decided decline. During this

*Carmoly. History of Jewish Physicians.

time there appears no physician who deserves mention here. The period marks the fall of the Persian Empire, the conquest of the Arabians and many revolutions which greatly disturbed the work of the Oriental Academies. The Eastern Roman Empire had passed its period of glory. Degeneracy and retrogression marked the age.

The birth of Mohamed inaugurated a new era. Two centuries of darkness had prevailed. The place of true science had been usurped by all sorts of superstitions. The Cabala assumed a mighty power. I quote from Carmoly.* "When they treated disease the object aimed at was to put in action the corresponding powers of the superior worlds; which could only be accomplished by one who, by a study of the Cabala, had obtained the knowledge of these worlds, and who, by his piety and contemplation, had become worthy of holding communion with the celestial powers. These qualities were deemed much more necessary for the practice of medicine than all terrestrial knowledge which is so often found deficient." The frequent religious persecutions directed against the Jews during this epoch, proved specially detrimental to the cause of medicine, which they previously had done so much to develop. But light again arose with the great Arabian Empire, which in a short time had conquered half of the then known world. It was not only a religious enthusiasm which characterized this new great power among the nations, but also the high standard of culture to which the Arabs attained; greatly overshadowing the western world. The caliphs became the great patrons of science. The conquest of Palestine, Syria and Egypt facilitated the acquaintance

* Dunbar's Translation of Carmoly; History of Jewish Physicians, p. 21.

with the intellectual achievements of the Greeks. The Arabs despised only such knowledge as was opposed to the Koran, but fostered with zeal History, Mathematics, Astronomy and Medicine. *Hyrtl* defends them of the charge of having completely destroyed the Alexandrian Library. Medical works and works relating to natural history were spared, and only religious and philosophical works in conflict with the Koran were destroyed.*

There was a new field for intellectual activity and the ancient love for science revived among the Jews. Bagdad, Kufa, and Basra became seats of learning in the 8th and 9th centuries, and the Jews became noted for their share in the fame which these institutions acquired.

### MASER DJAWAH.

*Maser Djawah Ebn Djeldjal,* of Basra, assumed a very prominent role at this time. He was a celebrated physician, but in addition made a great reputation for himself as a poet, critic and philosopher. He taught the Arabians in the arts and sciences. He was rewarded for his achievements in being made physician to the Caliph *Moawia I.* (7th century). He induced the Caliph to secure translations of works written in foreign languages and place them within reach of the rest of the world.

His pupil *Kalid,* the grandson of the Caliph, translated many Greek books, especially on chemistry, into Arabic. *Moama Djawah* himself had already, in 683, translated the Pandects of *Haroun,* an illustrious physician of Alexandria, into Syriac. This work gave a disquisition on small pox, and it may fairly be credited as the course at which the world since must trace its knowledge of that import-

* Hyrtl. Das Arabische und Hebraische in der anatomie.

ant disease. This statement is based upon the fact that "there is no proof that small pox was known either to the ancient Greeks or Romans."*

Contemporaneous with Maser Djawah, other Hebrew physicians established a celebrated medical school at Djondisabour, in Khusistan. Students were attracted from all parts, seeking knowledge at this institution, because its teachers were recognized as the most celebrated physicians of that time. Clinical instruction, which is generally regarded as an exclusive growth of modern times, was already at this early period imparted in an hospital situated in the vicinity of the school. So great was the reputation of this seat of learning that those who received their education here were deemed qualified to hold positions as professors in medical schools.

### Isaac Ben Emran.

Abn Giaffir Almansur, the 2d Caliph of his dynasty, having a high appreciation of the healing art, enriched the new city of Bagdad with many works on medicine, astronomy and philosophy, which he had translated from the works of Galen, Aristotle and Ptolemy. This soon led to the celebrity of the Bagdad school. Isaac Ben Emran was one of its distinguished pupils. His meritorious progress attracted the attention of Zaid, an African emir of Kaironan, the chief city of Barbary, who made him his physician. He wrote on the symptoms caused by poisons and on other subjects. He died 799.

### Joshua Ben Nun.

In the early part of the 9th century Joshua Ben Nun

*Practice of Medicine, by Geo. B. Wood, p. 387, Vol. I.

shed great lustre upon the celebrated school at Bagdad, being one of its most noted professors. He attracted many physicians to this school, and did very much to extend the knowledge of medicine. He greatly promoted the translation of scientific works into Arabic, the most fruitful field at that time for the spread of knowledge; a field in which Maser Djawah had been the pioneer.

Towards the close of the 9th century the cultivation of science received a marked impetus. A large number of books in all languages reached Bagdad from all directions and many Greek works enriched the library ef this city; this having been one of the conditions of peace exacted from Emperor Michel III., who was conquered in battle. Many new schools arose throughout the empire at this time. The power of this activity in intellectual culture beyond the confines of Asia. In Alexandria learning was revived; Fez and Morocco, Sicily and Provence joined in the movement. Spain became noted for the part assumed in the diffusion of the oriental sciences. Cordova, Toledo, Seville, Grenada, and Saragossa attained proud positions as seats of learning. Libraries multiplied in these cities. Jewish scholars entered with great zeal into this earnest promotion of science. They did not remain satisfied with simply translating works of the Arabic authors, but distinguished themselves in contributing new knowledge in their writings, especially was this true in the science of medicine.

Meschalla was both a great physician and a distinguished astronomer of this time. Carmoly states in his book on Jewish physicians that he possesses two treatises by Meschalla; one on "Astronomical Problems," and the other on "The Eclipse of the Sun and Moon," both

translated into Hebrew by Eben Esra. His works on astronomy continued to be held in high esteem in Europe over four centuries after his death.

The invasion of Western Europe by the Arabs created a taste for science in the various countries in which ignorance had heretofore prevailed, and it was here that the Jews were the first and most earnest to take up the work in the cause of science.

Prominent among these Jewish scholars were Meschullam ben Kalonymos, Joseph ben Gorion, Moses ben Jehuda, Todros of Narbonne, Joseph ben Levi and Zedikia, The latter stood foremost as the leader in this epoch, being the physician of Louis the Meek, and of his successor Charles the Bald. He was held in high favor by his royal master, who spoke of him as "My faithful Judah."* He died in 880, honored by all who knew him.

While at last science found a foothold in the West, the schools of the East maintained their prestige. Here the Jewish schools continued to increase in number, and competed with the Christian Schools to that extent as to evoke the jealousy of the Arabians. As a consequence Caliph Montawakkel decreed in 853 that Jewish and Christian students should only be taught in the Hebrew and Syriac languages, interdicting the use of Arabic in their studies. Isaac ben Amram and Isaac ben Soleiman, the most learned physicians of their time, received their education in these schools.

Isaac ben Amram became very celebrated through the remarkable cures which he effected, through the many students who flocked to him, and through his writings, which were highly commended by the Arabian authors.

* Graetz, History of the Jews, Vol. III., p. 170, American Edition.

Isaac Soleiman, surnamed Abou Jacob, better known as D'Israeli, was the most celebrated pupil of Isaac ben Amram. He was born in Egypt in 832. He entered upon his career as an oculist, but removed later on to Kaironan and entered upon general practice. His genius and learning soon won for him such renown that he was made the physician of Abou Mahomed Abd-Alli Mahdi, King of Africa. He secured great fame by his writings, but was not less distinguished for the nobility of his character. He was a very prolific writer on medical subjects, and he also wrote several books on Philosophy and Logic. Carmoly furnishes a list of 17 separate works written by him in Arabic, which were translated into Hebrew and Latin:

1. Treatise on Fevers, in five books, superior to anything written on the subject before his time.
2. Treatise on simple medicines and ailments; a work continually quoted by the Arabic physicians.
3. Treatise on Ailments and Remedies; known in Hebrew as Sefer ha Mesaadrim.
4. Treatise on the Elements; translated into Hebrew by the celebrated Abraham ben Chasdai.
5. Treatise on the Urine, translated into Hebrew by Contasti, as is shown by a copy in the National Library of Paris (Amien, No. 408).
6. An Abridgment on the Treatise of the Urine.
7. Treatise on Definitions and Prescriptions.
8. Introduction of Medicine.
9. Treatise on the Pulse; a work quoted by Ibin Abi Osaiba.

10. Treatise on Theriaca, quoted by same historian.
11. Treatise on Philosophy, in twelve parts.
12. Garden of Philosophy; a work on Jewish Theology.
13. Introduction to Logic; likewise quoted by Ibin Abi Osaiba.
14. Commentary on the Book of Jeremiah.
15. Treatise on Melancholy. MSS. in the National Library of Paris.
16. Treatise on Dropsy. MSS. also in the above mentioned Library.
17. A work dedicated to a practical course on almost all diseases. The work translated into Hebrew under the title Jair Nalib, in MSS. is in the Library of De Rossi, at Parma.

He died in 932, upwards of one hundred years of age. His complete works were published in Leyden as late as 1515, nearly 600 years after his death.

With the Arabs a number of learned Jews emigrated to Sicily and founded the celebrated schools of Tarentum, Palermo, Salernum and Bari, in which the science of medicine was carefully cultivated.

Schabtai Donolo, who had studied at Tarentum, and probably also at Salernum, flourished about the middle of the 10th century. He rose to great distinction as a physician and as an astronomer. Carmoly rightly infers that inasmuch as no reference is made by any of the ancient doctors to his medical writings that these must have been lost.* *Steinschneider* (1868) recently published a Hebrew Treatise on Pharmaceutics, written about the

* Baas's History of Medicine, Henderson, p. 259.

middle of the 10th century by a Jew who styles himself "Sabbatai ben Abraham, called Donolo, the Physician." This work treats of 120 drugs, all from the vegetable kingdom, with their modes of preparation. According to Haeser it bears the stamp of originality.

### The School of Salernum.

The Jews had no small share in establishing the character of this seat of learning. This school had a rather obscure beginning. It is claimed that it dates back to the 6th century, but its first definite mention is in 846, and it did not develop into its memorable significance till the 11th century. During many conturies it had no rival in Europe save the school of Montpelier. It attracted a large number of students who came from various countries, and therefore many languages had to be used in the instruction given. Pontius taught in Greek, Abd Alla in Arabic, and Elisha in Hebrew. A compendium of medicine was published from this school about 1035, and had as one of its contributors a Jew named Copho. Many of the Jewish physicians who afterwards became eminent received their training in this school. Among the female physicians who taught at Salernum was one Rebecca, in the 13th century, who published several treatises on medical subjects.*

### The Spanish Jewish Physicians.

A very noted period in the history of Medicine is included between the 10th and 13th centuries; a development upon an Arabian-Jewish basis, in the domain of Spain. In the advancement which medicine made at this time, Jewish physicians took a noteworthy part.

* Landau, Geschichte der Judischen Aerzte, p. 30.

Chasdai ben Sprot, became renowned as physician, astronomer, statesman and poet. He was made Prime Minister by Abdul Rahman III. He therefore had the advantage, from the office which he filled, to obtain information regarding his brethren in foreign countries through embassadors received at Court. It was he that discovered the existence of the Jewish Kingdom of the Khozars. He communicated with Joseph the reigning Monarch, in 948. Graetz speaks of this distinguished man as having only a theoretical knowledge of medicine.* According to Arabian writers he had contributed vastly to medical literature, and especially to materia medica. He translated all the names of the medicines described in the treatise of Dioscerides.

The Jews were especially active in promoting the progress of medicine in the 10th century. Three great names of this period deserve our consideration. Haroun of Cordova, Jehuha Chaioug of Fez, and Amram of Toledo.

Haroun's fame began in the year 965, when he became professor of medicine in the school of his native city. He published a commentary on Ebn Sina in 975.

Chaioug became a celebrity at the school of Kairoun, which at that time was in high repute with the great Arabian schools of learning. He also wrote a commentary on Ebn Sina, which is said to have had even greater merit than that of Haroun.

Emran ben Isaac gained great reputation in the practice of the healing art in Toledo. He was put to death by the Governor of Seville in 997. There remains no notice of anything that he has written, although he is

* History of the Jews, Vol. III., p. 216.

reputed to have been a great scholar in medicine, philosophy and astrology.

### Medicine of the Rabbis.

The study of medicine having been introduced in the schools of the Rabbis in the commencement of the 11th century, it made very decided advancement. The Rabbis had attained such skill and renown in the practice of medicine that their superiority was generally acknowledged. They became the physicians of princes and prelates; the close intercourse which they held with the latter often drew them in unpleasant and occassionally unfortunate religious controversies. So great was their reputation that Huarte, one of the best minds Spain ever produced, endeavored to show by Galenical theories that their temperament naturally gave them a great advantage in adaptability to medicine. Popes and prelates employed them; although canons declared that no Jew would be permitted to become a physician, or to attend a Christian. The greatest merit of the Jewish physicians of the time is that they founded the plan of the medical school of Montpelier.

Montpelier existed as a city as early as the 9th century. There were at this time Jewish schools in many towns of Languedoc and Provence, especially at Arles and Narbonne about the year 1000. Dr. Rabbi Abou, grandfather of Moses Ha Darschon, was at the head of the last named school. While religion was the most important subject of instruction, medicine was also taught. One of his pupils, whose name is not mentioned and who wrote a medical work at Montpelier in 1025, is regarded as the probable founder of the medical school of that city.*

* Carmoly's Jewish Physicians, Dunbar's Translation, p. 38.

This work is referred to as the "Book of Medicine" by a number of authors of the 12th century.

About the same period Jonah ben Gonach figured at Saragossa. He was born in Cordova. He wrote a work on simple medicines which was very favorably commented upon by Ebn Abi Osaiba, a distinguished physician of Damascus of the 13th century and a great authority on the biography of physicians. Gonach was not prominent, however, in medicine alone. He had a great fondness for the study of Hebrew grammar and subjected the work of Jehuda Chaioug to a very severe criticism. His Hebrew grammar, written in Arabic, was translated into Hebrew by Jehuda Ebn Tybbon, also a noted physician. Gonach died about the year 1068.

The 11th century produced a great number of Jewish physicians, who besides shedding lustre upon their profession, won laurels in many other fields of learning.

Their fame was established in both Christian and Musselman countries. Their praise was heard in Egypt, France and Germany. Space will not permit even the simple mention of all their names.

### Ebn Zohar (Avenzoar).

The most distinguished physician of the 12th century was Abou Merwan Ebn Zohar, born at Pentaflor, 1070, he reached the advanced age of 92 years. Both his father and grandfather had been physicians of note, and therefore it was probable that he was initiated in the study of medicine at an early age. He was well equipped for the practice of his profession, and he soon rose to distinction. Poisonings were often perpetrated at this time. He cured the King of Seville, whose physician he was, of the effects of poison given by his own

family. The relatives of the King, finding themselves thwarted, persecuted the worthy physician and put him in prison for a long time. When the King was driven from Spain by Joseph ben Tachefyn, Prince of Morocco, Eben Zohar regained his liberty, and had honor and wealth bestowed upon him. He entered the services of the generous prince, and was appointed to a medical chair in which he taught for many years and did much to spread and extend the knowledge of medicine among the Arabs. Ebn Roschid (Averros) was his pupil, whose reputation was of that character that his compendium of medicine was published as late as 1531. The pupil says the following of his master: "In order to arrive at a profound knowledge of medicine it is necessary to read carefully the works of Ebn Zohar, which are the real treasure of the art, and we are indebted to his family for the true science of medicine."* He was in close intercourse with most of the great physicians of his time, by whom he was regarded as a second Hippocrates. He was a bold thinker, and had the courage to question the teachings of Galen, which must be regarded as a real piece of heroism at that time. He was versed in Hebrew, Syriac and Arabic alike, and esteemed an elegant writer in both poetry and prose. He is reputed to have been the first to discover the parasite of scabies (the itch).†

The following is a list of of his medical works:

1. Tessier, a work on Remedies and Regimen.
2. A Treatise on the Cure of Diseases.
3. Two Treatises on Fevers.

He wrote very clearly on laxatives and purgatives.

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* Dunbar's Jewish Physicians, by Carmoly, p. 45.

† Landau "Geschichte der Judischen Aerzte," p. 32.

He speaks of phthisis, general wasting caused by ulceration of the stomach as a new disease. He reports a remarkable case of tumor of the stomach. He studied inflammation of the mediastinum and pericardium. He describes angina produced by paralysis of the oesophagus, and proposed to treat the condition by means of remedies applied through a long tube. He mentions aphonia caused by schirrous enlargement of the tongue. He had correct ideas of the effects of marsh exhalations. He bled his own son, aged 3 years, with success.

### Aben Esra.

Abraham ben Meir Aben Esra, was born in Toledo in 1092. He was endowed by nature with genius which enabled him to master almost all the sciences. He devoted himself to earnest study at an early age. He mastered the Hebrew, Syriac and Arabic languages, and besides acquiring great fame for his Jewish learning, he ranked as a celebrated physician and was well versed in astronomy, grammar, philosophy, and mathematics. His thirst for knowledge induced him to undertake extended journeys to foreign lands. He visited France, Italy, Greece, Palestine, Syria and Persia. He also reached India, where he was imprisoned, but fortunately escaped, returned to Europe and finally travelled to England. He left an unpublished work on "Theoretical and Practical Medicine," in nine parts. This, which seems to have been originally written in Arabic, is found in the National Library of Paris in the Hebrew tongue. The work bears the title "Sefer Hanisionot," book of proofs, because he speaks only of remedies which have been tried and approved. Like many other great men he had to contend with poverty, to which he alludes in

the following striking words: "I strive to become wealthy but the stars are opposed to me. If I were to engage in shroud-making, men would cease dying, or if I made candles the sun would never set unto the hour of my death."* He died in 1167.

The cruel wars between the Mohammedans and Christians forced many of the Jewish scholars from Spain, who found a refuge and position in the middle provinces of France, where Jewish schools had already been established. Prominent among these were Jehuda Aben Tybbon and Joseph ben Kimchi.

Jehuda Aben Tybbon acquired great renown as a translator, which seems to have overshadowed his reputation as a physician. From letters addressed to his son Samuel, who also was a physician, we learn that he was deeply interested in medicine, and especially in botany and pharmacy.

Joseph ben Kimchi emigrated from Southern Spain to Narbonne, and has the credit of introducing the culture of Spain into the South of France. His acquirements in other fields of knowledge, apparently exceeded that which characterized him as a physician.

## Moses Ben Maimon.

Maimonides was born in Cordova, 1135. He received his first instruction from his father, who was Judge at Cordova. He not only developed into one of the most learned of Jewish scholars of any time, but also secured the wide spread fame of being one of, if not, the most skillful physicians of his day. Religious persecutions drove him from Spain. He settled for a short time at Fez. Here he fared no better, and having been forced

* Graetz's History of the Jews, Vol. 3, p. 369.

to adopt Islamism, at least so far as outward appearances required, he sought a refuge in Egypt, where he formally proclaimed his adherence to Judaism.

He began his career in Egypt by engaging in commerce; his talents however soon became known and he was made the physician of Alfadl-al-Rahim, and subsequently Saladdin appointed him his first physician. Here he attained to great influence, and Osaiba, the great medical biographer, to whom we have already referred, gives the testimony that he was foremost among the physicians of his time.

In a letter to Samuel Aben Tybbon, he gives an account of how his professional duties keep him uninterruptedly occupied from early morning to deep into the night, often leading to great physical exhaustion.

He was a voluminous writer on medical subjects, Some of his works were published in their Latin translation in Bologna and Basel as late as 1570. He died 1204, aged about 70 years. The vastness of his intellect was equalled by the refinement of his moral nature. The closing sentences of his daily prayer on entering upon the duties of his profession bear testimony to this.

"Preserve, O Lord, the strength of my body and of my soul, that I may ever be preparing cheerfully to aid and to assist the rich and the poor; and him who is my friend. In the afflicted let me ever only see the man."*

Medical works of Maimonides:

1. Medical Aphorisms; translated into Hebrew by Nathan Hamati, a copy of which is preserved in the National Library, Paris.

* Landau Geschichte der Judischen Aerzte, p. 34.

2. Abridgement of the sixteen books of Galen; an Arabic work, quoted by Osaiba.
3. Treatise on Hæmorrhoids and their Treatment; National Library, Paris.
4. Consultation on Snuffling of the Nose and Throat.
5. Treatise on Poisons and Antidotes. The translation by Aben Tybbon, in the National Library, Paris.
6. Treatise on Coition. The Hebrew translation in the National Library, Paris.
7. Asthma. Hebrew translation in National Library, Paris.
8. Commentary on the Aphorisms of Hippocrates.
9. Of the Regimen of Health. National Library, Paris, is in possession of Hebrew and Arabic copies.
10. Hebrew Translation of Ebn Sena. MSS. in Library of the Dominicans at Bologne.
11. Explanation of Drugs. An Arabian Pharmacopœia, quoted by Osaiba.
12. Medical Consultations. Hebrew MSS., National Library, Paris.
13. Modes of Curing those Bitten of Venomous Animals, or who have been Poisoned. A Hebrew translation of this work, National Library, Paris.
14. Treatise on the Causes of Disease. Arabic, Bodleian Library.
15. Sefer Refuot. Sabtai asserts that MSS. is in Imperial Library of Vienna.
16. Sefer ha Nimza.
17. Abridgement of the Work of Ebn Sina. Arabic; Escurial Library.

While Maimonides was enjoying such an unrivalled fame in Egypt there was another Jewish physician in the service of Saladin of no mean acquirements. Nathaniel Israeli was born at Fostat, and made a name for himself both as a practitioner and a medical writer. He left many medical works, among which there was one on the medical topography of Alexandria.

There were quite a number of other Jewish physicians in Egypt at this period, but the want of space will not permit them to be mentioned here.

It is worthy of mention, however, that Maimonides left a son, Abraham, who was a physician of considerable distinction, since he became the physician of Melie Alcamel, the brother of Saladin, and furthermore he was a physician to the hospital at Cairo. Osaiba knew him well. He attended the hospital at the same time and speaks of him with high esteem. He died in Cairo in 1236. His son David, the grandson of Maimonides, practiced medicine at Cairo till 1300. He in turn left two sons, Abraham and Solomon, who also remained faithful to the profession so greatly honored by their illustrious ancestor.

There were many noted Jewish physicians in Spain during the 13th century, to whom we must now return, having followed Maimonides to Egypt.

Moses Ben Nachman, or Nachmanides, born at Gironne, 1196, was sent to France, where under the care of Jehuda, at the Montpelier school, he made great advancement in the study of medicine. Jehuda was one of the professors in the medical school at the time. After finishing his studies at Montpelier he returned to his native city and founded a Rabbinical School. He had acquired a rich knowledge of Talmud and was an avowed opponent of

the Cabala. Through the influence of Rabbi Asriel, of Gironde, however his aversion was converted into a devotion which won for him the title of prince of the Cabala. This must have exerted a deleterious influence upon him in the practice of the healing art, for, on the authority of one of his pupils. he employed pieces of lead, shaped like a lion, to cure diseases of the kidneys. He was acknowledged to be a most skillful accoucher. He ranked high as a doctor of the law, and was therefore selected to discuss publicly, 1263, with Paul Christiani at Barcelona, before King Jacques I., and Raymond of Penafort. The excitement following subjected him to persecutions which determined him to seek rest at Jerusalem. Here he died in 1267.

### Meschullam Ben Iona.

Meschullam Ben Iona was the physician to Alphonso, King of Castile and Leon, who ascended the throne in 1252. The King was a generous patron of the sciences and employed many Jewish scholars, including his physician, in scientific work and in the translation from foreign languages. Meschullam ben Iona translated from the Arabic into Hebrew a universal treatise on medicine by the celebrated Kalaf Ebn Abbas Aboul Karem. This work bears the title of "Chefez na Shalom," and is preserved in MSS. in the National Library of Paris.

The number of more or less noted Jewish physicians during the 13th and 14th centuries is much too large to be separately mentioned here. They flourished in the various parts of Spain. Many of them were the physicians to the different rulers, the nobility and the high officials.

During the 13th and 14th centuries we also find Jews occupying high positions as physicians in Portugal. Solomon ben Maseh Shalom, on account of his great political influence, deserves special mention here.*

Don Moseh was physician to Ferdinand the first, and to his successor John I. (1385-1433). When Pope Boniface IX., 1389 issued a bull forbidding the persecution of the Jews, in which was included hindering them in the free exercise of their religion, the desecration of their graves, and the enforcement of special taxation upon them, Don Moseh prevailed upon the King to proclaim a similar edict in his country for the protection of the Jews.

### The Medical Schools of Montpelier.

The Medical School of Montpelier has already been incidentally referred to in connection with the prominent aid contributed by Jewish physicians in its early organization. During the 13th century central France counted many erudite and skillful Jewish physicians who had been reared in this school, to which many Rabbis were attached as teachers. The prominence which French Jewish physicians attained, engendered a severe hatred against them. The clergy revived the ancient proscriptive laws of the church. The council of Beziers, 1246, forbade Christians employing Jewish physicians. A similar edict issued from the council of Abby, 1254.

Jehuda, the preceptor of Nachmanides, and the pupil of Isaac ben Abraham, governed the Montpelier Medical School at this time in conjunction with the Regent Nicholas. Jacob Ha Katon was one of the professors. He had mastered the Hebrew, Arabic, Latin and provin-

* Geschichte der Judischen Aerzte, Dr. Richard Landau, p. 40.

cial languages and translated the pharmacopœia of Nicholas into Hebrew, a copy of which is found in the National Library of Paris. Another very distinguished scholar and physician of this school, who well deserves to be mentioned here, is Samuel Aben Tybbon. He has justly been called "Rosh ha Maatikim," prince of interpretors, being foremost among the translators of Arabic into Hebrew. He translated many of Maimonides' religious, philosophical and medical works into Hebrew, He did not, however, confine himself to translations, as did his father Jehuda Aben Tybbon. He was the author of many works which were held in high esteem, among which is one entitled "Jikavou ha Maim," in which he endeavored to explain why the waters of the sea did not encroach on the land.

In 1300 a Jew named Profatius held the position of Dean of the medical faculty of Montpelier, who, besides his medical learning, had acquired a high reputation as a mathematician and astronomer. He is quoted by Copernicus in an observation in 1303 of a deviation of the Sun from the Equator which he had calculated to be 23° and 32′.

We have now reached a period in the history of this celebrated school when we must turn our attention to the persecutions to which the Jews of France had been subjected, and which now were nearing their sad culmination. The distinction which the school of Montpelier had achieved, largely through the influence of the Jewish scholars attached to it, and the sway that the Jews had obtained in the field of medicine, evoked a bitter hatred against them from the Paris faculty. The University of Paris, though a very old institution, being traced back to the reign of Charlemagne, in the 8th century, and

though it had attained an elevated standing in the other departments of knowledge, it was not known as a medical school of decided repute till the 16th century. During this period there were no very distinguished Jewish physicians in Paris. Two physicians, Copin and Moise, are mentioned as practicing towards the close of the 13th century. These had a female colleague named Sarah. In 1301 the faculty of Paris published a decree forbidding any Jew or Jewess to practice medicine among Catholics. This spirit of intolerance reached Provence. The Councils of Avignon, in 1326 and 1337, also the synodical statutes of Rouerque, 1336, interdicted Christians from employing Jewish physicians. In 1306 the Jews were banished from France. This decree fell hard upon the large Jewish congregation at Montpelier. All were doomed alike to exile. Many of those who occupied chairs in the University, who had so meritoriously contributed to its reputation, and to the intellectual glory of France, now became wanderers looking for new homes in other lands.

In 1360 Jews were permitted to return to the cities whence they had been expelled, and Montpelier again became a favored seat of learning for Jewish scholars. In the latter half of the 14th century we meet with the names of Solomon ben Abigdor and Messulum ben Abigdor who both practiced in Montpelier and were known as distinguished physicians and writers on Medicine. Dolan Bellan was a distinguished surgeon at Carcasonne. Jekuthiel ben Solomon, who practiced in Narbonne, translated the Practice of Medicine of Bernard Gordon into Hebrew. In Provence, Jewish physicians were sought by those in high stations. In 1369 a call reached Baruch Abin of Arles from the Queen Johanna. This physician

found such high favor with the Queen that he and his posterity were exempted from all taxation.

We find in Marseilles, during the 13th century, a physician, Schem-Tob ben Isaac, who gained great distinction as a practitioner of medicine, and who left many medical works to perpetuate his memory. He must have reached a high age, for he was born in Catalonia, in the town of Torlosa, in 1196, and one of his works bears the date of 1264. He began his studies when he had attained the age of 30 years, having been reared for commercial pursuits, into which he had entered with great earnestness. Having consulted a noted Rabbi on a matter governed by the Jewish law, he was made to feel so ashamed of his ignorance that he vowed that he would not enter into any business again until he had studied that law. He immediately became a pupil of Rabbi Isaac ben Meschullam of Barcelona. When he had finished his studies he came to France, stopped for a time at Montpelier, and finally settled at Marseilles. He wrote the following works:

1. Sefer Ha Schimusch, a medical treatise by the celebrated Al-Zaharabi, translated into Hebrew. From the many parts in which it is divided it appears to be a very extensive work. It is to be found in the National Library of Paris.

2. A Treatise on Medicine, by Almanzor, translated from Arabic into Hebrew, 1264, preserved in MSS. in the Library of the Vatican.

3. Sefer Ha Nefesch, a treatise on the Spirit of Aristotle; the MSS. found in the National Library of Paris.

There was in Marseilles another renowned physician and scholar, Jacob ben Abba Mair. He was a native of

that city, descended from a very distinguished family of scholars, but acquired his fame in Lunel and Narbonne, and finally in Berziers, where he practiced his profession. The reputation which he gained as a skilled physician attracted the attention of Emperor Frederick II. of Naples, who made him his physician, and bestowed great honors upon him. He received his principal medical training at Lunel, where he became the pupil of Samuel Abn Tybbon, who became greatly attached to him and gave him his daughter in marriage. He translated quite a number of works, embracing Ebn Roschid's commentaries on Aristotle; Ebn Roschid's original work on the Art of Speaking (Sefer Cochmat Ha-Dibbur) and an astronomical work of Ptolemy. There is no mention of any medical work written by him.

### School of Salernum.

The School of Salernum, already referred to for the very significant aid contributed by Jewish scholars in the beginning of the more important period of its career, produced a number of distinguished physicians at this time, among whom Aboulhakim and Farraguth must be mentioned. Aboulhakim had made quite a reputation as a physician and added to his fame by an Arabic treatise on the Preservation of Health; the MSS. of which is in the Library of the Escurial. Farraguth, who besides being an eminent practitioner, ranks as one of the most important translators of the 13th century. He translated from the Arabic into Latin a medical work of Iahjah ben Djesla, which he dedicated to Charles of France, brother of St. Louis, King of Naples and Sicily. This translation was published as late as 1536. He was probably the first of the Jewish physicians who translated into Latin.

Hillel ben Samuel, also of the School of Salernum, was considered a great physician as well as a profound philosopher. He translated into Hebrew the Surgery of Brunus of Longoburgo. Brunus was a professor in Padua in Hillel's time and had completed an excellent treatise on Surgery, from Greek and Arabic sources.

Hillel also wrote "Sefer Tagmolé Ha Nefesch" a treatise on the mind; and also a commentary on part of Maimonides' "Moreh Nebuchim."

### School of Rome.

Salernum, on account of its antiquity and the well merited reputation which it gained as a seat of learning, was the main source of medicine in Italy. We must, however, briefly turn our attention to Rome, where, during the latter third of the 13th century, many Jewish physicians had risen to high rank. Nathan Hamati, a native of Syria, chose Rome as his field of work. He composed an abridgement of the Canon of Ebn Sina. He also made many translations into Hebrew, of which the following is a list:

1. Mamar ha-Meschichot, a medical treatise of Zoharani.
2. Sefer ha-Perakim, with a commentary of Galen which he completed in 1283.
3. Perke Mosche, the aphorism of Maimonides.
4. The Canon of Abn Sina.
5. Sefer ha Refuot ha-Ain, a treatise by Aboulkassem on the diseases of the eye.

A Rabbi named Doctor Isaac was the physician of Pope Boniface VIII.

Serachia ben Isaach Chen. We here meet with a man

who was one of the brightest luminaries among the scholars of his time. He emigrated from Spain to Rome. He wielded great influence among his learned contemporaries. He taught the philosophy of the time, and was the author of many medical and philosophical works.

The following comprises a complete list of his productions:

1. Treatise on the Faculties of the Mind, by Abou-Nazar Al-Farabi translated from Arabic into Hebrew. MSS. in Nat. Library of Paris.

2. The Canon of Abou Abi Abn Sena, translated into Hebrew. In Royal Library of Paris.

3. Sefer Ha Tob ha Gamur; a treatise on the summum-bonum, or sovereign good, translated from the Arabic for the Rabbi Schabbai ben Solomon.

4. Explanations on some passages of the book Moreh Nebuchim, composed for the learned Jehudah ben Solomon. MSS. in Nat. Library, Paris.

5. Letters to the physician Hillel, of Lombardy, upon some difficulties in the same book of Moreh.

6. A philosophical commentary on the Proverbs of Solomon.

7. The metaphysics of Aristotle, translated into Hebrew at Rome, 1284.

8. The physics of Aristotle, translated into Hebrew, Rome 1284.

9. "Sefer Schamaim vé ha Olam" of the Heavens and the Earth.

The three last works are in the Library of Turin.

10. Commentary on Ebn Roschid, on the Metaphysics of Aristotle, translated from the Arabic. A MSS. in same Library.
11. Commentary of Ebn Roschid on the Physics of Aristotle found in same collection.
12. A treatise on the Medicine of Maimonides.

## The Decadence of Jewish Medicine in the Orient and Spain.

We have taken into account the marvelous development of the sciences under the influence of the new power created by Islamism, and the conspicuous contributions of the Jewish physicians characterizing this epoch. We have followed the extension of this culture to Italy, to Spain and to France, and we have seen that the Jewish scholar and physician again has been an important factor in securing a firm foothold for science in these new territories. In retracing our steps to the Orient, we find that near the end of the 10th and at the very beginning of the 11th century, the light which had arisen here, and had so beneficially illuminated so much of the Western World, was now becoming extinguished. The political power of the Mahomedan Empire had reached its zenith, and its disintegration began. Tunis and Fez first established their independence. Egypt formed a separate state. Persia in the East, withdrew from the empire. The decline of the material greatness of this vast power was followed by the withering of the Arabic sciences. The conditions were too unfavorable for Jewish physicians and therefore they cast their lot in the more favored lands of the West; hence, we shall find but very few here at this period to engage our attention.

Nathaniel, a Jewish physician of the 12th century, performed an important role in his day. He was born in Basra, but came quite young to Bagdad. He procured his medical knowledge under great difficulties. The most celebrated of medical teachers of Bagdad excluded all Christians and Jews from their lectures. Nathaniel was, however, not to be thwarted in this way. He bribed the janitor and was permitted to occupy some concealed place in which he could hear the lectures.. On an occasion when a question was put by the teacher which no one in the class was able to answer, he emerged from his concealment and gave a satisfactory answer by quoting a passage from Galen. This gained him free admission to the future lectures. Nathaniel became very renowned as a physician, and received the title of Aouhad el Zaman, the only one of his day. Though he was richly rewarded for his skill, he deplored that there were some who did not fully respect him, because he was a Jew. He became a Mahomedan, but to his great chagrin the Mahomedans rendered no more honor to Stabat Allah, the name which he adopted with his conversion, than to Nathaniel, while the Jews treated him with contempt. It is said that he was completely forgotten during his life. He died aged 80 years, in 1164, deserted, poor, blind and deaf.

Abn-Mona ben Abn Nasr, surnamed Kouvin, who lived about the same time at Haran, wrote a work on the Preparation and Preservation of Simple and Compound Medicines.

Ebn Zakkeryya is greatly praised for his profound observations and for the extent of his knowledge. He was the physician of the son of Moureddin, who died in Aleppo in 1181.

In the 13th century a Jew became the physician to Argun, the Grand Khan of the Perso-Mongolian Kingdom. He was called Saad Eddaula, "A pillar of the State." He also became Prime Minister, and did such eminent service in restoring a healthy condition of the finances that he gained the esteem of his King. The rigid rule which he was forced to exercise towards the debased officials, brought upon him the hate of the Moslems. When finally the King became ill, in 1291, and he failed to cure him, his enraged enemies not only murdered him, but also many other Jews who had enjoyed a brief period of prosperity. The date of Argun's death marks the beginning of the terrible Mongolian war, and the time when learning in the East had reached almost its complete decay.

Spain, which had proven such a fruitful soil for Eastern culture, and where the Jewish physician had distinguished himself in the high civilization with which that land was favored, became infected with the poison of religious intolerance. Already in 1250 the blood accusation was hurled against the Jews in Castile, during the reign of Alphonso X.

The clergy was active in stirring up this hatred against the Jews, and especially against the Jewish physicians, being in the way of the monks, who about this time began to study medicine. The Jewish physicians on account of their learning and skill had attained almost complete sway in medicine. Persecutions against the Jews began to assume an increasing violent character. Toledo, Cordova and Barcelona became the scenes of serious outbreaks. This was especially the case in Toledo 1445, which was followed by the decree that even converted Jews should not hold office, annulled

however by a bull of Pope Nicholas. The synagogue in Toledo, the finest in Spain, had already, in 1411, been converted into a church. Many Jewish physicians at this period left Spain to settle elsewhere. We found Jehuda Aben Tybbon at Montpelier, who had come from Grenada; Joseph ben Isaac ben Kimchi at Narbonne, and a little later Schem Tob at Marseilles, who emigrated from Catalonia.

In the 14th century Simon ben Zemach Duran left Arragon and took up his residence in Algiers, where he found a wide scope for his activity. He was chosen to become Chief Rabbi, so that he could be permanently secured, and as a mark of the esteem in which he was held, he was called Simon the Great. It is regarded as certain that he was the first Rabbi who drew a stated salary. Simon Duran wrote many works, but only those relating to Theology and Philosophy have survived.

In the beginning of the 15th century, Solomon ben Abraham Ebn Dand who remained in Spain, wrote a complete work on Medicine embracing Anatomy, Physiology, Diseases, Symptomology, Prognosis, Diatetics, Therapeutics and Hygiene.

In following the history of Jewish physicians of the early part of the 15th century, we meet with a number more or less distinguished, who in part translated from the ancient Arabic authors, contributed commentaries, and wrote original works on medical subjects.

All of these held high rank among the Jews of Spain, both for their profound learning and the dignity of their character. In the face of the persecutions to which they were now being exposed they remained faithful to their profession and steadfast to their religion. There was

In the "Historia de España" (Madrid, 1722) Don Juan de Terreras reported that in the year 1468 Rabbi Abiabar, "also a renowned surgeon and astrologer," undertook what other physicians feared to do, namely to attend to King Juan of Arragonia who was nearly blind. He stated: "Quien le passo la aguja en el ojo derecho, y le quitó de el cataractas y viendo et buen efecto dela operacion, de alli a un mes, contra la sentencia de el medico, hizo que le ejecutasse el remedio en el ojo iz quierdo, que tuo el misco feliz efecto, con que quitó el Rey libre de aquella molesta." "By the leading of the needle in the right eye he ejected the cataract with such good result that, after a month had passed, he undertook, against the opinion of the (court) physician, the same operation on the left eye, and freed the king from his ophthalmic molestation."

unfortunately a notable exception to this rule. Josia Lorki, coming from the learned circle of the Jews of Spain; a physician of high attainments, and a profound Jewish scholar, was made physician to Pope Benedict XIII. He adopted Christianity as Heironymus de Santa Fe and began a merciless crusade against his already unfortunate brethren. He induced the Pope to summon twenty of the most esteemed Rabbis of Spain to engage in a public discussion at Tortosa; furthermore, he prevailed upon him to interdict the Talmud, finally through his influence a Papal bull was issued against Jewish physicians and apothecaries. The deposition of Benedict by the Council of Constance prevented his vicious schemes being executed. What became of the renegade is unknown. By the Jews he was termed "Megadef," the calumniator.

Despite the intolerance fostered by the clergy against the Jews, there remained noble princes in the middle of the 15th century who fully appreciated the skill of the Jewish physicians and held them personally in high esteem, and there still remained a field for them for the practice of their profession. Henry IV., who became King of Castile in 1454, had a Jewish physician; and Don Juan II., of Arragon, had his sight restored by a cataract operation performed by Abibar, a Jew, in 1468.

After this period we find the names of Gallab of Catalonia; Isaac ben Schem Tob, who taught both medicine and philosophy in Castile; Samuel ben Chabib of Arragon, who probably practiced in Seville; Solomon ben Verga, who likewise practiced in Seville and who wrote a history of the Spanish Jews, which was translated into the Latin, Spanish, Portuguese and German lan-

guages; Vidal Caslari, of Catalonia, who translated Maimonides' Regimen of Health into Hebrew.

This brings the history of the Jewish physicians of Spain to a close. In 1481 the Inquisition was introduced with its sequent horrors, of forced baptism and the stake, eventuating in 1492 in the edict of expulsion of over 800,000 Jews.

## Jewish Physicians of Italy.

The School of Salernum has already attracted us to Italy. We have followed the Jewish physicians from their early connection with this school to their career in other parts of Italy, notably to Rome to the close of the 13th century. The expulsion of the Jews from France by Philip le bel, 1306, caused many to seek refuge with the mild and tolerant Charles II., King of Naples. Samuel ben Jacob of Capua became his physician, who translated the medical works of Jahya ben Maseriah from a Latin version published in Egypt. Robert of Anjou, the successor of Charles, had also a Jewish physician, whose name does not appear, but of whom it is stated that he was a physician of vast ability. The King had collected a great number of Hebrew books which he had translated into Latin by his physician.

Sicily did not offer much attraction to Jewish physicians. The parliament at Piacca on the 20th October, 1293, adopted a law which provided that in a case in which a christian permitted himself to be treated by a Jewish physician the patient should be imprisoned for three and the physician for twelve months, with only bread and water for their subsistence; while the physicians fee and an amount equivalent to the cost of the medicines should go to the poor. This legislation could

not always have been enforced, for either from the greater leniency of the rulers, or from a scarcity of skilled physicians, we find here at this time Aaron of Messina, Master David and Gaudius practising undisturbed. In 1459 these provisions were revoked, the Jewish physicians were accorded full freedom to practice medicine. The conditions in general in Italy however were unfavorable to the attainment of great prominence by Jewish physicians. During the latter half of the 14th century political quarrels grew fierce; the popes were compelled to have their seats in Avignon (France) from 1305 to 1376, hence we meet with but few great names among Jewish physicians at this period. There were, however, some who gained renown. Gentile de Folingo, who was elevated to a Professorship in Padua in 1340, where he died in 1348, a victim of the plague. *Manuela* became the physician to Pope Boniface IX., who in 1392 appointed Angelus Manuela, the son of Manuela, to that position at his father's death. In 1399 Boniface gives this flattering testimony in regard to his physicians: "That in the practice of their profession they were courteous and benevolent, aud ever ready to help the poor and needy without exacting pay, and that they were equipped with a ripe experience."

In the beginning of the 15th century the Rabbis of Italy took great interest in medicine; a number entered actively in its practice; others busied themselves with copying manuscripts, thereby to promote the spread of medical knowledge. We are not permitted to consider the large number of names with which we meet at this time.

With the increase of Jewish physicians and the decided prominence they had attained, the envy and

hatred which they so often had experienced was again renewed. Bernard of Sienna, a fanatical monk, who lived from 1380 to 1444 was especially active in inciting this antipathy to Jews in general, and to Jewish physicians in particular. He went from city to city preaching against them. In his venomous tirade he used the vilest calumnies. Bernard of Feltre, his successor, endeavored to surpass him in his cruel vituperation. Better die from disease, said he, than owe your health to a Jew. The papal bull of Martin V., in 1422, warning the monks to desist preaching against the Jews, at the peril of excommunication, did not avail to repress this spirit of intolerance. The intelligent class continued to treat the Jews kindly and appreciated the skill of Jewish physicians. The monks, however, succeeded to arouse the passion of the ignorant populace, and instances are recorded in which in the face of impending death, the nearest relatives of the sick refused to submit the care of the patient to the care of the Jewish physicians. While Bernard of Sienna had the bull of Martin the V. against him, Bernard of Feltre was encouraged by the Popes of his time. Eugenius IV., Nicholas V. and Calixtus III. had issued a bull forbidding Christians to employ Jewish physicians. There were very few or no Christians who understood the healing art, and therefore they failed to have their full intended effect. The nobility and even the higher clergy valued their health too much to be influenced by these papal bulls. Paul II., while not more lenient to the Jews in general than his immediate predecessors, was more generous towards Jewish physicians. Ferdinand I., King of Naples, disregarded the edicts of the Church and selected as his physician Benjamin of Porte Leone. As a curious piece of irony it may be

stated that the city of Siena, named after Bernard of Siena, at this time appointed a Jew as its physician.

From the time of Paul II. there was a notable increase of prominent Jewish physicians. Abraham Conath, of Mantua, deserves special mention here, for besides being recognized as a physician of rare attainments, he has the credit of having, in 1476, a printing press with Hebrew type. The Hebrew printing which issued from Conath's establishment must be regarded as among the earliest; the first printing that was done antedated it only twenty years.

About the same time Elias ben Jehuda was a physician in Tivoli. He wrote a work on diseases of women in the form of a dialogue, the manuscript of which is preserved in the library of the Vatican.

Passing the names of a number of Jewish physicians who are mentioned as having held honorable rank, we must take brief notice of Eliah del Medigo, who held a chair in the University of Padua at the close of the 15th century. Subsequently he had a call from Florence, where he held a similar position. Here he enjoyed the friendship of the Prince Jean Pic de la Mirandole, for whom he, in 1485 and 1486, translated two works in Latin. He wrote many books, among which are mentioned a Commentary on Averroes in Hebrew and Latin, 1485, and one on "The Examination of the Creation of the World." He was a bitter opponent of the Cabala, which was then again being cultivated.

Vidal Balson, who came to Reggio from Sicily in 1492, wrote an excellent text-book on medicine (1505), covering the whole field of the science. The Paris library possesses the MSS. of this unpublished work.

Abraham del Balmas about the same time was a re-

nowned professor of medicine in Padua. He was the physician of Cardinal Gamarri. He translated works of Ptolemy, Averroes and others from Hebrew texts into Latin. When he died, in 1523, the university instituted a grand memorial meeting. We must again pass a number who deserve mention. Alexander VII., Julius II. and Clement VII. were three popes who in succession employed Jewish physicians and held them in high esteem; Samuel Zarfati served the two first named; Isaac Zarfati the last.

Obadiah Sforno, a prominent physician and a profound Jewish scholar, died in Bologna in 1550. It is not known whether he wrote medical works. His Commentaries on the Pentateuch and on the Psalms were published as late as 1724. It is of interest to mention here that Reuchlin, who spent some time in Italy in 1498, became acquainted with this physician and received instruction from him in the holy language.

Abraham de Porte Leone, born 1542, coming from a long line of distinguished physicians, studied at Padua and settled at Mantua. In 1564, at the instance of the Duke William Gonzaga, of Mantua, he instituted examination as to the therapeutic value of gold and published his results. The use of gold, as a medicinal agent, up to this time was unknown to the Jewish physicians. He contributed to Jewish literature. His medical writings were in Latin. We will now turn our attention to three eminent men, who went to Italy from France and Spain.

Bonel de Lates was born in the small village of Lates, near Montpelier, and remained in Provence till 1498, when the Jews were expelled from there. Arriving at Rome he devoted himself to astronomy, and invented an instrument by which the distance of the sun and the

stars could be determined, as well as the hour by day and by night. He presented an article, written in Latin, on "The Theory and Practical Use of his Instrument" to Pope Alexander VI. He became the physician of Leo X., by whom he was held in high esteem, and upon whom it is believed he had great influence from a circumstance to which I shall now refer. Johann Pfefferkorn, of Cologne, a converted Jew, who made it his life's purpose to bring the foulest accusations against Jewish religious writings, endeavored to induce Emperor Maximilian to permit him to seize all such books, wherever they could be found and to destroy them. He met a noble antagonist in Reuchlin, who, from the knowledge which he had acquired in this respect, recognized the base motives of Pfefferkorn. He presented the matter in its true light to the emperor in a well written dissertation. This led to a bitter literary controversy, which lasted ten years, two parties having sprung up, the one siding with Reuchlin, the other with Pfefferkorn. The emperor ended the controversy, and appealed to the Pope for his decision. Reuchlin wrote to Lates to enlighten the Pope. The Pope instructed the Archbishop of Speyer to examine into the controversy, which resulted in the defeat of Pfefferkorn.

Jehuda Abarbanell was born in Lisbon, came as a child to Castile, where his father, Don Isaac Abarbanell, rose to the rank of Minister of the State. He had been in great favor with King Ferdinand and Queen Isabella, but the decree of expulsion came in 1492, to which even he had to submit. After wandering from place to place he finally settled in Genoa. Jehuda was educated as a physician. He was made the physician of Ferdinand I., King of Sicily, and also to his successor, Alphonsus II.

All contemporaries agree that he was a very skillful physician, a sympathetic poet and a profound philosopher. He left no medical works. He wrote "*Dialoghi di Amore*" in Italian, which has been translated into French, Spanish and Latin.

Jacob Montino came to Italy from Spain to escape the horrors of the Inquisition. He settled in Venice, where, under the guidance of his learned father, he was taught the science of medicine. He went to Rome, where he became the physician of Pope Paul III. He translated many medical and metaphysical works from Hebrew and Arabic into Latin. Such work was of immense benefit to the spread of medical knowledge, as it brought the learning of the East to the West, where Oriental languages were not understood.

We have seen how the practice of medicine was obstructed by the intolerance of a fanatical clergy and illiberal popes; and we have again watched its healthy development under the generous government of enlightened rulers. Another change ensued. In 1555 Paul IV. became Pope, and, though aged ninety years, manifested a terrible hatred against the Jews. Pius V. followed his cruel example. Gregory VIII. intensified the persecutions introduced by his predecessors. The Jews were degraded in every way possible. Jewish physicians were forbidden to treat Christian patients.

Pope Sixtus V. proved more tolerant, and revoked the decree that forbade Jewish physicians treating Christians. They again began to rise to prominence in the 17th century. Jacob ben Isaac Zahalon was born in Rome in 1630. He studied medicine, especially surgery, and also Rabbinical literature. He practiced successfully at Fer-

rara until his death in 1693. He wrote a very comprehensive work on medicine.

We shall close this part of our history with a brief reference to Ephraim and Isaac Luzzatto, born respectively in 1729 and 1730. They attended the university at the same time. Both received on the same day their degree of Doctor of Medicine in 1751. The younger, Isaac, settled in his birthplace, St. Daniel, and practiced his profession. In 1777 the Jews were expelled. He, however, was permitted to remain with his family, and he continued to practice till his death in 1803. Ephraim Luzzatto remained in Padua for a while; he traveled considerably, and finally settled in London in 1763. Here a most successful career was opened to him, and he remained thirty years. He yearned to join his brother again. His wish was not fulfilled. He died on the journey in Lausanne (1799).

## Jewish Physicians of France.

We have traced the history of Jewish physicians in France to the close of the 14th century. In 1394 the second decree for the expulsion of the Jews was issued. Having had a rest of only thirty years, they were doomed to become wanderers, and a full century passed before Jewish physicians were again heard of, when a few of the Spanish exiles were permitted to remain in France.

At this time Pierre de Notre Dame had settled in Arles. He assumed this name after he adopted Christianity in his advanced age. His Jewish name is not known. He entered the service of the Duke of Calabria, and subsequently he was transferred to that of his father, King René I., by whom he was highly esteemed.

Jacob Proncal, a native of Marseilles, came to Naples

and wrote a treatise on the study of sciences, in which he gave prominence to medicine.

The hospitality of France was however of but short duration, and we find that Bonet de Lates, who later became so famed in Italy, becoming a victim of the persecution (1494) breaking out anew at Montpelier. Under the protection of papal influence, which then prevailed at Avignon, Jews were permitted to dwell there, among whom we find Jewish physicians, who must eventually have entirely disappeared in France. When Francis I. fell ill he was anxious to have a Jewish physician attend him. He appealed to his former antagonist, the German Emperor Charles I., who sent him a physician. The King, believing this physician to be a Christian, dismissed him at once, and procured a Jewish physician from Constantinople through the intervention of the Turkish Minister. It is stated that this physician ordered asses' milk. The King recovered, and since that time the use of asses' milk in the treatment of disease has been firmly retained in France.

Ely Montalto, of a Portuguese family which emigrated to Italy, studied medicine there. His fame reached Paris, and he was called to be the physician of Queen Maria. Before accepting this post of honor he stipulated for the free exercise of his religious convictions. Henry IV. agreed to the conditions, and went far beyond them in providing for his wants. When he died, in 1615, the King had his body embalmed and had it conveyed to Holland to be interred in a Jewish cemetery. He wrote two treatises on Medical subjects in Latin, and a philosopho-theological work in Portuguese.

Notwithstanding the high favor in which Montalto stood, Jewish physicians were not permitted to settle in

France. Orobio de Castro lectured on Medicine at the University of Toulona, about the middle of the 17th century. He went to France from Portugal, where his parents were compelled to submit to baptism. The family remained, however, steadfast to their Jewish faith and Orobio de Castro fell a victim to the Inquisition. The tortures to which he was subjected to extract from him the confession that he secretly was a Jew failed. He finally fled to France, where he continued to represent himself as a Christian. He enjoyed great respect in Toulouse, but he sacrificed position and honor to act consistently with his convictions. He emigrated to Amsterdam where he could throw off the mask which so long had oppressed him. He secured such a large practice there that he could find no time for literary work, with the exception of the discussion in which he entered, opposing Spinoza, 1684. Previous to this he had written much on philosophical and theological subjects in both the Spanish and Latin languages.

Jean Baptiste de Silva, a descendent of one of the most learned families of Portugal, was born at Bordeaux, 1686, studied medicine at Montpelier and won the degree of Doctor of Medicine before he was quite nineteen years old. He became the assistant to Helvetius. His reputation as a physician was wide spread. He was repeatedly summoned to the invalid Louis XV., 1721, and in 1724 was made his consulting physician. He was called to Munich to attend the German Emperor Charles VI. Empress Anna of Russia offered him the appointment of physician to her Majesty, which he declined. He wrote a treatise on venesection, and three volumes on dissertations and consultations of M. M. Chisar el Silva. He died 1742.

These physicians were followed by a few others, but an inquiry into their career would lead us further in history than this study will permit. After the Revolution in France the Jew was for the first time recognized as a citizen in Western Europe with full equality with other citizens.

The return of the Jews must have been very slow, for in 1830 there were only 27 Jewish physicians in the whole of France.

## Jewish Physicians of Germany.

Although Jews are known to have been in Germany before the introduction of Christianity, we shall be compelled to make a considerable advance in history before we will meet with Jewish physicians. As an explanation of this, we must recognize that the Jews of Germany had been subjected to a more continuous humiliation and persecution than those of any other country. Elsewhere they had enjoyed long periods of peace, in which the development of science being favored by the rulers, placed a value either upon the knowledge which they brought, or on the adaptability which they were known to possess.

In Germany their oppression never wholly ceased. There is only one notable exception, already referred to, of a Jewish physician in Germany at an early period, viz: that of Zedikias, who was a physician to "Charles the Bald" in the 9th century. Horovitz * in his history of Jewish physicians of Frankfort on the Main, states that the butchery of the Jews in 1241, which ended the first successful era of the Frankfort Jewish community, has destroyed every trace in regard to Jewish physicians

* Dr. M. Horovitz, Jüdische Arzte in Franfurt a. M., p. 4.

of that time. While Montpelier and Salernum attracted the Jewish youth and educated the men who became the eminent physicians with whom we have been made acquainted, the universities of Germany remained closed to the Jew. It must be further remembered that the cultivation of Medicine in Germany began at a late day. It was only when the works of the Greeks and the Arabs reached Germany in the Latin translations, which had been rendered in so large a measure by Jewish physicians, that the rise of medicine may be said to have had its beginning.

We have learned how much was done in regard to these translations by Farraguth and Jacob Montino. Regular lectures on anatomy had no place in the curriculum of either the University of Vienna till 1433, in that of Prague till 1460, and in that of Tuebingen till 1484. The practice of surgery was deemed below the dignity of the German physician during the 16th century. The first mention of a Jewish surgeon occurs in 1348. The first physician named is Jacob of Strasburg, who practiced in Frankfort from 1373 to 1396. There must have been many physicians at this time, for it is recorded that complaint was made at Regensburg that almost all Christians were treated by Jewish physicians. An oculist is mentioned, by the name of Abraham, who practiced his art at Schweidnitz, and who was held in high esteem.

In Basel a Jew, Master Jossel, was made the physician of the city in 1376. Towards the latter part of the 14th century similar appointments were made in Frankfort. Among these Solomon Pletsch, in 1394, is named. In 1407 Bishop John I. of Wurzburg appointed one Seligman of Mergentheim as his physician, relieving him, his wife, his children and his servants of all taxes.

Bishop John II. permitted a Jewess, Sarah, to practice medicine in his jurisdiction. She is said to have amassed a large fortune. Zerlin, 1494, another Jewess, was accorded the right to practice in Frankfort. She had a large practice, especially as an oculist. We hear of Jewish physicians having practiced medicine all through the 15th century in many places in Germany and others now in the Austrian domain; but there is naught mentioned as to their standing.

Emperor Frederick III. of the house of Hapsburg, had for his physician Jacob Loans, who stood in such esteem that the emperor bestowed upon him the knighthood. Loans was acquainted with Reuchlen, to whom he gave instruction in Hebrew, as afterwards did Obadiah Sforno in Italy. In 1505, Lorenz of Bitra, of the Bishopric of Würzburg, published a decree against Jewish physicians. A further attack upon them came from a pamphlet written by Victor von Carben, published in Cologne, 1509.

It must also be mentioned that during the whole of the 14th century, up to the period which we have reached, no physician could practice medicine in Vienna who did not in an oath declare his belief in the Immaculate Conception. This prohibition was removed by Emperor Maximillian in 1517. In 1561, Ephraim, a physician in Wertheim, petitioned the Prince Bishop of Würzburg for the privilege of continuing his practice, but it was not granted. This led to a great want of physicians in this region.

On the contrary, in Frankfort, there were many physicians at this time. Felix Platter, Professor in Basel, a very noted physician of his day, mentions in his autobiography that during his time there was only one Christian physician in Frankfort. The Jewish physicians

were, however, numerous, and they gained a great reputation, which extended over the adjacent country as far as Giessen. In the latter city there was not a single educated physician at the time. Among Jewish physicians of Frankfort we find Joseph ben Ephraim Levi, died 1532; Abraham ben Josef Levi, who died 1581; Jacob ben Samuel, who died 1585; Aron, died 1608. But a prejudice existed against them. Emperor Ferdinand, who was crowned 1558, chose Dr. Lazarus as the physician of his daughters in Innsbruck, and afterwards granted him the privilege to settle anywhere in Germany and practice his calling. In 1563 he applied to the city of Frankfort for permission to practice there; though recommended by the emperor, his request was refused on the ground that he was not a physician, but only a conjurer.

We hear of physicians during the 16th century at Mühlheim, Königsburg and Thun, but nothing especial appears in regard to them. The first mention of a Jewish physician in Berlin occurs in the 16th century. Elector Joachim II. had as his physician a Jew, named Lippold. He was greatly respected and was further appointed Minister of Finance. In 1571 the elector died suddenly. The enemies of the doctor charged him with the death. The elector John George, his successor, imprisoned Lippold, and after a trial had him quartered in 1573. His family and his co-religionists were ordered to be driven out of the country forever.

In the 16th century a number of Jews settled in Hamburg. Among them were physicians, the most prominent of whom was Roderigues de Castro. He was born 1546, in Lisbon, studied in Salamanca, where he obtained the degree of Doctor in both the philosophical and medi-

cal faculties. He settled, in 1598, at Hamburg, where he practiced till his death in 1627. He rose to great distinction as a physician, leaving many works on medical subjects.

His son Benedict continued in the practice established by his father and became the physician of Christian, King of Denmark. He died at an advanced age in 1684, having also been an author of a medical work.

His younger brother, Daniel de Castro, born in Hamburg, 1599, became the physician of Frederick III., King of Denmark.

Jacques Rosales, also a Portuguese, who reached Holland and then came to Hamburg, practiced in the latter city from 1637 to 1645. He died in Livorno in 1668. He acquired the title *comes palatinus*, that is, a count of the German Empire, which gave him the right to bestow academic degrees. Rosales, besides having established a great name for himself as a physician, was also an astronomer, and wrote poetry in Latin. In addition to those already named, religious persecution drove Benjamin Musaphia from Spain. Born in 1606, he settled as physician in Glückstadt, Holstein, and finally passed his last years in Amsterdam. He was a physician, linguist, Talmudist and poet. He published the following works: "A Theory on Ebb and Flood," "Aphorisms of the Scriptures," and a poem on the six days of creation.

There are not many physicians named at this time in other parts of Germany, and none rose to the distinction that was attained by those who came from Spain and Portugal. In 1614 the Jews were expelled from Frankfort, and with them the Jewish physicians. In 1616 they were permitted to return. In 1631 the Jewish con-

gregation resolved to appoint a physician to treat the poor gratuitously. Josef del Medigo was chosen. He had passed some nine years in Amsterdam, and came to Frankfort when he was forty years old. He was reputed to be the most celebrated Jewish physician of the time. He remained ten years in Frankfort, then settled in Prague. He influenced greatly his son-in-law, Solomon Bing, son of the Dr. Abraham Bing, then practicing in Bingen. Solomon Bing had received his degree in Padua, and settled for the practice of medicine in Frankfort. There were a number of highly cultured physicians in Frankfort at the time. They were again beset by envy and hatred. Abraham ben Isaac Wallich, also a graduate of the University of Padua, who began to practice in Frankfort in 1657, wrote a popular work on medicine in Hebrew.

In 1700 the medical faculties of Wittenberg and Rostock proclaimed that a Christian could not place himself in the care of a Jewish physician. Johann Heinrich Mehl, in Worms, preached against them. In 1745 there appeared a book written by John Helfrich Pfeil, which was devoted to the purpose of showing that a Jew was unfit to receive the degree of doctor of medicine. William I. of Prussia, in the beginning of his reign, decreed that all Jews must wear a green hat, and spoke disparingly of Jewish physicians. This seems, however, not to have deterred Jews from entering the profession. From this period, Jews were permitted to enter and take degrees in medicine in Duisberg, Halle and Giassen. During the 18th century there were highly cultured Jewish physicians in nearly every part of Germany. They are too numerous to be referred to separately.

Jacob Marx, a graduate of Halle, settled as physician

in Hanover, where he died 1789. He wrote a large number of medical works.

On returning to Berlin we find no mention of Jewish physicians since the sad story in regard to Lippold, who was quartered in 1573, till the middle of the 18th century. We then meet with Markus Elieser Bloch. He was born in Anspach in 1723. He went to Hamburg at the age of 19 with little more than a Hebrew education. He became the pupil of a surgeon who taught him his art, and the German language, while he was instructed in Latin by a Bohemian student. Subsequently, he went to Berlin where he enthusiastically engaged in the study of medicine and the natural sciences. He had the degree of medicine bestowed upon him by the University of Frankfort on the Oder, and he settled in Berlin to practice. He acquired means, by his practice and by marriage, and he began to devote himself entirely to scientific research. He was especially interested in Ichthyology. He established a private museum, in which he had a collection of aquatic animals which became a center of attraction to the scientific world. The result of many years of study and observation was embodied in a work on the Fishes of Germany, in nine volumes, the first appearing in 1785, the last in 1795. The work contained 324 plates. He published two editions in German and one in French by his private means. He died in Carlsbad, 1797. He also wrote a work on the waters of Pyrmont. In 1782 he won the prize of the Scientific Society of Copenhagen, for a work on intestinal worms and the treatment to be applied.

Solomon Gumpertz, born in Berlin, after finishing his studies visited France and England and acquired the languages of these countries. He became a very success-

ful physician and is highly spoken of in regard to his attainments by Moses Mendelsohn in a correspondence with Lessing, 1754.

Aaron Emmerich, in Berlin at the same time, is spoken of as a physician of great repute. He was well versed in the Greek, Latin, French and English languages, He was made the physician of the Berlin Jewish community in 1750, when the office was created. Leo Elias Herschel, also a distinguished Jewish physician of Berlin, although dying at the early age of thirty-one years, left many medical writings. He wrote, among other subjects, on "The Uses of Corrosive Sublimate."

Before leaving Berlin and the Jewish physicians of Germany, there is one man who must not be forgotten.

Marcus Herz was born in Berlin in 1747. His parents were poor and he was sent to Königsberg to be reared to business. He was attracted to Kant and attended his lectures on philosophy. He secured the friendship of Kant, and was selected by him as his opponent in his dispute in entering upon his professorship. Herz also studied medicine, and when he won his degree he returned to Berlin and began to practice. He enabled Mendelsohn to become acquainted with Kant. He delivered lectures on philosophy in his home, graced by his beautiful wife, to the élite of Berlin. One of his auditors was the Prince, afterwards King Frederick William III. He had a very large practice, was the physician of Moses Mendelsohn and of Prince Waldeck, and physician to the Jewish Hospital in Berlin. He died in 1803. He wrote a number of medical works, from the titles of which it would appear that he was a man of original research.

